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ABSTRACT

Two studies were conducted to examine the problems experienced by special needs students in the process of making the transition to postsecondary vocational education programs, to develop a model of the transitional process, and to empirically examine that process via instruments related to the concept of educational adjustment. The first study was a statewide telephone survey of secondary education, postsecondary education, and vocational rehabilitation personnel in Minnesota. Based on this survey, it was concluded that the concept of transition is best viewed in terms of key persons, processes, and corresponding needs and resources that apply to students as well as to their educational environments. Thus, to enhance the educational adjustment of special needs students entering postsecondary institutions, practitioners could utilize various correctional, compensation, and circumvention strategies to modify conditions that are difficult for the students to tolerate and to enhance the students' ability to overcome or avoid frustration. The second study, which examined the progress of 96 students at a small rural postsecondary vocational education institution in Minnesota, supported the assumption that instructional variables are more educationally relevant than typical student data such as gender, race, economic status, and previously received supportive services. (MN)

Educational Adjustment:

A Model for Enhancing Vocational Special Needs Students' Success

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Introduction

The decade of the 1970's was a period when societal influences, in the form of federal legislative mandates, began to exert substantial pressure on American educational institutions to improve and expand services for students with special learning needs. Thankfully, it now appears that many vocational education programs have enrolled increased numbers of special needs learners in recent years. Hopefully, the next decade will prove to be a period in which the "special needs" label is expanded beyond the current categories of the handicapped, limited English proficient, and disadvantaged, to include all vocational students who are having difficulty succeeding and/or those persons who tend to drop out for reasons that could be addressed through proper remediation services.

Unfortunately, large numbers of special needs learners (sometimes as high as 70 or 80 percent) have failed to successfully achieve the transition into and through postsecondary vocational programs. This paper will focus on studies at the University of Minnesota's Research and Development Center for Vocational Education which: (a) developed a model of the "transition" process, and (b) empirically examined that process via two instruments related to the concept of Education Adjustment. The Educational Adjustment concept is examined as a means to analyze student attrition processes and to, eventually, enhance efforts to retain potential dropouts. The identification of factors relevant to Educational Adjustment will offer direction for future retention-enhancement efforts.

Designing a Transition Model*

The development of a conceptual model of the student transition process, understandably, represents a difficult task. Many of the variables that must be considered are readily apparent, while others must be drawn from the literature or by analyzing appropriate research data. For example, five

*This section is based on Brown, J.M. & Kayser, T.F. "The Transition of Special Needs Learners Into Postsecondary Vocational Education", University of Minnesota, Minneapolis, Minnesota, June 1982.

general transition factors were identified as a result of the telephone survey and will be discussed in the next section. After the relationships of these variables to the model are examined, the framework of a transition model will be discussed. At the current stage of this investigation, it is important to recognize that it is feasible to develop only the framework for such a conceptual model. The development of a more precise, i.e., measurable, model would require additional work, including the development of a means to empirically test the effectiveness of transition processes. Such work will necessitate an iterative process of model building, data collection, and then model revision, etc. Although the proposed framework may not resolve the immediate problem of excessive termination rates among special needs students in Minnesota's AVTIs, this report should serve as a basis for future development and refinement of the transition process. Let us begin by examining the five general factors identified by staff in postsecondary vocational programs.

General Factors in the Transition Process

A statewide telephone survey of secondary education, postsecondary education, and vocational rehabilitation personnel in Minnesota identified three critical factors related to current transition efforts. These factors are:

1. Many different persons are involved in helping the special needs student make the transition into postsecondary programs.
2. There were many different procedures currently in use to assist in this transition, and their effectiveness is unknown in many cases.
3. Information related to the transitioning student was often not shared with all appropriate parties in the transition process.

While survey respondents indicated that current transition practices have exhibited limited effectiveness, they were also dissatisfied with the overall results of the transition process. There appeared to be agreement among these respondents that a more standardized procedural model is needed, and desired, to make their work easier and to improve special needs students' transition into postsecondary vocational education programs.

A Strategy to Facilitate Postsecondary Transition

The special needs learner may be broadly classified as an individual who has difficulty successfully achieving any or all of the required objectives in a vocational education program. Consequently, this person typically requires a variety of educational interventions in order to succeed in a vocational education program. On the other hand, the educational system must be relatively comprehensive for the transition model to function effectively. This comprehensiveness determines the nature and extent of instruction and support services that are available to assure "correspondence" among the following: (a) the institution's resources versus the educational needs of special needs learners and (b) the institution's requirements, e.g., program prerequisites, versus students' characteristics. In other words, a comprehensive educational system enhances the probability that the institution will be able to effectively serve unique student needs and that students will be able to comply with institutional needs.

The Model

A postsecondary transition strategy is perceived to be a system by which educational programs can readily adapt to the unique educational needs of individual learners by modifying: (a) the performance potential of learners, (b) the content or standards of educational programs, and/or (c) the teaching/learning environment. Such an educational system could enhance the flexibility of the total instructional environment in unique educational situations. Applying a combination of these modifications would generate a variety of benefits. First, these modifications would have the potential to increase learners' abilities to tolerate the educational environment. Second, these modifications could also reduce levels of frustration/anxiety which students and educators experience within educational environments by modifying the nature of content and standards in the teaching/learning process. To the extent that educational systems successfully accomplish these modifications, the percentage of students successfully completing all or most of the requirements in instructional programs will increase while the percentage of students who drop out of training programs before they are able to acquire useful skills, will be reduced.

The proposed transition model is drawn from a synthesis of four different but related sources of information: (a) Theory of Work Adjustment (TWA) (Dawis, England, & Lofquist, 1969), (b) theory of health services delivery (Davidson & Perloff, 1981), (c) theory of instruction (Smith & Currey, Note 1), and (d) an approach to selecting rehabilitation practices (the "3 Cs") (Krantz, 1981). Many of ideas and variables referred to by these four sources have been reconceptualized to serve as the basis of the transition model.

It is assumed that underlying all human behavior are existing or potential theories that help explain the foundations of individual behavior. Thus far, no one has attempted to develop a theory to explain the transition process of special needs students or the converse, their failure to successfully make the transition into and through postsecondary vocational education programs, i.e, dropping out.

Educational adjustment: The central issue. The concept of educational adjustment is based on the idea that the extent to which the ability requirements of the training program are consistent with the abilities of the individual trainee and the extent to which the needs of the individual correspond to the need reinforcers of the training program, is a measure of the mutual correspondence would exist between the learner and the teaching/learning environment. However, if a learner was not satisfied with the program and was not performing well in the program, a state of total discorrespondence would exist and the individual would most likely leave the program or be terminated unless some modifications could be made in order to accommodate these differences.

This conceptualization is similar to that of the Minnesota Theory of Work Adjustment (TWA), (Dawis, et al, 1969). In TWA, workers may either continue to work at their jobs or leave the immediate work environment. In either case, factors which influence whether the person remains or leaves are measures of the relationship between the individual (performance and needs) and their work environment (work requirements and reinforcers). The same may be said of transition in an educational setting. Factors related to individual students' characteristics and to the instructional environment in which students must function, may be viewed as forces which influence students' transition efforts. Continued transition through the

educational environment is a function of a student's performance level and their ability to correspond to the needs and resources of an educational program. When "input" (curriculum, instructor, school policies, and procedures) and/or "output" (student's ability to attain or maintain acceptable performance levels) result in non-corresponding conditions that cannot be tolerated by either the environment (school/program managers) or by the student, such a condition may result in a situation where the student is terminated or chooses to exit (drop out) from the educational environment.

However, by definition special needs learners are those persons who cannot, or will not, succeed in a regular vocational program unless additional support services are provided to individual students, as needed. Smith (Note 2) noted that in the educational process, learners must have the ability to perceive/receive, encode, decode, and assimilate the stimuli contents that constitute the course curriculum. These attributes influence an individual's ability to participate in the learning process and may be observed in terms of the student's psychomotor, cognitive, and/or affective behavioral responses. Smith has developed an "instructional model" based upon these concepts and states that the instructional implications will vary from one individual student to another, based on the influence of these attributes. However, special needs learners can be assumed to be deficient in one or more of these attributes. Thus, such persons will require "special needs" services in order to succeed in the vocational education program (continue in the transition process) to the maximum extent of their potential.

Special needs services. A growing variety of educationally-related services are provided for postsecondary vocational students including those identified as having special needs. Support services of this nature typically include remedial reading, remedial math, and counseling. These services can be referred to as "corrective" measures (Krantz, 1981). But in order to apply corrective measures, it is first necessary to determine the nature and extent of students' educational needs. Much of the data collected during in the monitoring process, described earlier, should satisfy this requirement.

In addition to "correction," Krantz (1981) identified two other proce-

dures as options for working with special needs learners: "compensation" and "circumvention". These make up the "3 Cs". The latter two options are usually applied to the educational environments, not to the students. All three options have the same purposes in mind: (a) to increase individuals' abilities to function in their educational environment and/or (b) to expand the range of students' abilities and actions which will be served in an educational setting. Both of these options may be applied individually or in combination as determined by the flexibility, creativity, and skill of an educational institution's staff.

Smith, Brown, and Kayser (1982) proposed a psychological model for designing and managing instruction for special needs learners. They argue that given the right circumstances, "all learners may be, to some extent, handicapped or disadvantaged in terms of one or more of the following variables: (a) their physical or mental capabilities, (b) the nature or form of the content presented [to them], or (c) the nature of the behavioral responses/standards to be produced". Improved educational technology based upon this model should permit increasing numbers of special needs learners to be more effectively identified and educated. Examples of procedures deemed appropriate to help various categories of special needs students to succeed in vocational education programs are suggested in the article by Smith, et al. However, the broad concepts of compensation, correction, and circumvention of special learning problems are not discussed in that article. Before Krant's the "3 Cs" can be applied to students and their educational environments, student characteristics and the major environmental components must be examined.

Student Characteristics in the Learning Process

Based on a synthesis of literature which examined the student characteristics required to succeed in educational settings, Smith (Note 1) identified several basic processes related to sensory input, information processing, as well as the three behavior output responses (see Figure 1).

Special needs students are typically viewed as having limited capacities in the stimulus input, information processing, and/or behavior output stages of the learning process. Thus, unless effective support services can be applied to enhance the appropriate stages of students' learning process

within educational programs, such students are likely to drop out. Unfortunately, many special needs students are not identified in time to prevent them from dropping out of AVTI programs. This means that Krantz's the "3 Cs" have not been effectively used to aid students' to meet institutional demands or to help institutions adequately accommodate students' needs.

It seems logical, therefore, to assume that if students are weak in one of the stages of the learning process under normal conditions when no special instructional assistance is provided, the resulting poor performances of such students may often cause them to become frustrated with themselves and their educational programs. The strategies of correction, compensation, and circumvention can be used to accommodate students' needs within educational institutions. Transition procedures are meant to provide timely, effective services to students and, thereby, retain increased numbers of students in the system by keeping their frustration levels within limits which can be tolerated by both the student and the institution.

Enhancing Institutional Accommodations of Students' Needs

The transition process seek to must optimize conditions for the institution and for the student. The basic strategies of correction, compensation, and circumvention can be applied in terms of key variables in the instructional process (Smith, Note 2) (see Table 1).

Numerous educational tasks require many trial-and-error efforts. For "regular" students, these are often difficult tasks; to special needs students these tasks may seem impossible. To apply the circumvention strategy, a variety of options might be used. A vocational education training program's structure could be modified to avoid the need to learn some hands-on skills. Also, the use of written instructions could be reduced or eliminated in order to avoid generating frustrations that could inhibit the performance of students' with limited reading ability. Correction can be applied to students' psychomotor skills by closely monitoring activities, and providing feedback to students when skills are being developed, thus, correcting inappropriate behaviors immediately after they appear.

Compensation can be applied by a wide variety of options. For instance, instructors could inform students that each task represents only one of many activities contained in a course and that weaknesses in one area can often be offset by strengths in other areas. In addition, students must understand that some tasks are inherently more difficult than others and they cannot expect to achieve success immediately. The rate and frequency for presenting course materials may be altered (compensation) to extend over segments of several class periods, not just during a single, brief discussion. Reinforcement may also be increased, especially during the early stages of intervention, and feedback can be provided more frequently than would be typical under normal circumstances. Although many tasks are essentially psychomotor, the provision of additional types of stimuli (designed to focus not only on "how to", but the "why" of tasks) may compensate for existing special needs and, thus, increase students' performance levels. These correction, compensation, and circumvention strategies can enhance students' success rates and reduce feelings of frustration that could otherwise cause them to drop out of school, to be terminated, or to fail to successfully complete graduation requirements. Methods of reducing students' levels of frustration with the educational system should also be undertaken and discussed next.

Enhancing Student Accommodations of Institutional Needs

Strategies that maximize students' abilities to accommodate institutional needs will also decrease the likelihood that they will be non-completers. For example, if data were collected that indicated that a student had a reading ability below a level required for a given program of instruction, remedial reading services could be employed to enhance the student's ability to function within that program (correction strategy). If, however, the student's reading performance in the training program approaches a point where dropping out or termination is being considered, a circumvention strategy might be applied to reduce the reading-related demands placed upon the student. Another example of circumventing this problem would be to utilize the counseling process to explore the possibility of transfering the student to an alternate training program with reduced reading requirements.

The transition-enhancement process (see Figure 2) represents an on-going cycle of events which continues for each student until they complete the program, drop out, or are terminated. Most students are evaluated only by their teacher(s) during the instructional stage (informal assessment). Their problems, if any exist, are usually resolved by the instructor and the student. However, special needs students often exhibit problems which must be examined by more thorough (formal) procedures. These students may have unique educational needs which exceed the ability or resources of classroom instructors. In such cases the assistance of support services staff and/or social services agency personnel may be required.

A wide variety of factors, ranging from the simple to the complex, have been described as components or factors in the articulation process. The concept of transition is complex and requires the creation and validation of a conceptual model before related research and development efforts can be effectively and efficiently pursued. Figure 3 provides a model of the significant activities available to be employed by a hypothetical post-secondary vocational institution which is committed to maintaining transition-enhancing conditions.

Transition Study Conclusions and Recommendations

The transition concept is a relatively new and different approach to looking at the continuing problem of dropouts or early leavers/noncompleters of educational programs. This report has presented the concept of transition in terms of key persons, processes, and corresponding needs and resources that apply to students as well as to their educational environments. The idea of "educational adjustment", as it relates to special needs students, was also examined in terms of three strategies which could be applied to: (a) modify conditions which are difficult to tolerate and (b) enhance students' ability to avoid or overcome frustrations. These strategies are labeled correction, compensation, and circumvention. Examples of how these strategies may be applied were also briefly examined. The task of determining how well the transition model functions in reality must now be undertaken.

In order to better understand transition processes and to implement valid/reliable transition policies and practices, the concept of Educational Adjustment should be examined in greater detail.

Examining The Educational Adjustment Model*

Most studies conducted on student dropouts have tended to focus on the various demographic characteristics or attributes of the leaver groups after-the-fact rather than during the time they are either students or workers. However, once the student has left the educational program, there is very little that can be done to better understand the reason for the termination. The same may be said for workers who leave their work environment.

These issues were the principle motivating forces that led to the conduct of a research study which tested the Educational Adjustment construct, in order to more effectively understand and reduce attrition in technical training programs in vocational education.

The remainder of the report will discuss the rationale for, and the findings of, a study designed to test the validity of the construct of Educational Adjustment. Two instruments were developed to begin implementing the construct of Educational Adjustment: (a) satisfactoriness (student performance in the vocational program), and (b) student satisfaction in the training program.

Objectives

The study included the test of four separate but related objectives.

Objective 1: To determine if ratings of student satisfaction and teacher ratings of student performance (satisfactoriness) were both reliable and stable assessments.

Objective 2: To determine if the two measures of satisfaction and satisfactoriness are statistically independent.

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*This section is based on Smith, B.B., & Kayser, T.F. "Educational Adjustment: A Model to Enhance Retention", a paper presented at the Military Testing Conference, Pensacola, Florida, October 27, 1983.

Objective 3: To determine the extent to which measures of satisfaction and satisfactoriness account for the most variance in related criterion variables in total and within each vocational program.

Objective 4: To determine the extent to which measures of satisfaction and satisfactoriness are related to the construct of Educational Adjustment.

Rationale for Study

The concept of Educational Adjustment is based on two previously developed models or theories: (a) Brown and Kaysers' Model of Educational Transition of Post-Secondary Vocational Students (1982) and (b) the Dawis-Loftquist study of work adjustment (1978). Both models or theories are based on the concept that: (a) if it is possible to identify the level of acceptable preformance of a student or worker in terms of the ability requirements of the job or training program, and (b) if it is possible to assess the degree of satisfaction (need reinforces) of educational environment, then (c) it may be possible to modify the work or training environment in ways that will enhance the worker's/student's coorespondence with the environment and, thus, enhance the probability of retention and long-term success.

Figure 4 represents a diagram of the construct of educational adjustment. It suggests that individuals enter a training program with a wide range of interests, abilities, aptitudes, motivations and of different educational backgrounds and preparations, and representing different race and sex characteristics. There is very little that can be done to change these attributes, but the instructional program must in some way accommodate these diffeences if it is to successfully meet the needs of each learner such that they will remain in the program to its completion. Failure to make such accommodations will produce high program attrition.

The Study

The previous part of this paper has examined issues related to special needs learners of transition into and through vocational education in terms of educational adjustment, the remainder of the report discusses the population, sample, instrumentation, and findings of the recent research study which examined the Educational Adjustment concept.

Population and sample. One relatively small rural postsecondary area vocational-technical institute and six different vocational programs involving 96 male and female students and 15 teachers who participated in the study.

Table 2 shows the various demographic attributes of the students in each of six post-secondary vocational programs. While one of the programs was female dominated, most were male dominated and one was about 50% male and female. The sample was biased in the sense that a majority of the students (76%) were male and only 24% were female. These demographic data were obtained from the cumulative folder maintained by the school as part of their standard admissions procedure. The population also was all caucasian (white).

Procedures

Teachers rated student performance (satisfactoriness) at four different times during the spring of 1982 on a 70 item, 5 point Likert Instrument for each of 96 students in each of the six vocational programs. On two occasions, students rated how satisfied they were with the school, the program, the teacher and the instructional environment on a 40 item 5 point Likert scale, satisfaction instrument.

In addition to the measures of student satisfaction and satisfactoriness, students and teachers were asked more global questions respectively, about their satisfaction and performance in the program to serve as additional criterion variables. Students were asked: (a) to judge their overall satisfaction with the program, and (b) their intent to be employed in the occupation for which they were trained. Teachers were asked to judge each student in their class on: (a) overall class performance, (b) success in grasping the content, (c) tentative grade in class, and (d) likehood of successfully completing the course.

Findings

The findings of this study are presented in a series of tables for each of the four objectives of the study.

Objective 1: To determine the reliability of the measure of student satisfaction and student satisfactoriness.

Table 3 shows the data for the student satisfaction instrument in terms of internal consistency for each of the six program areas, and each of the six

scales of the instrument and then estimates of stability between the first and second administration of the instrument. In general, the student ratings of satisfaction are internally consistent when looked at by scale and by stability estimates, but less reliable when looked at by each of the six programs. This may, in part, be due to the relatively small number of students in each program or it may reflect changes in satisfaction between the first and second administration of the instrument. Satisfaction may be a dynamic construct which is sensitive to program, teacher and instructional content. While many of the coefficients, were quite low, all were statistically significantly different from zero.

Table 4 shows the coefficients of internal consistency and stability for four different assessments of teacher ratings of student satisfactoriness for each of six different vocational programs and seven different factors (scales). In general, it may be concluded that the satisfactoriness instrument is internally consistent for each of the six programs and each of the seven scale scores and is quite stable over four different administrations of the instruments.

Objective 2: Independence of satisfaction and satisfactoriness.

Table 5 shows the data from a canonical correlation among the seven scales of the satisfactoriness instrument and the six scales of the satisfaction instrument and a Pearson P-M correlation between total scores from both instruments.

The data indicates a low and non-significant P-M correlation among the total scores (r=.114 and only one moderate canonical correlation of r=.59 using the subscales in the analysis. The latter indicating that about 33 percent of the variance of one set of scales is explained by the other scales. This means that the concepts of satisfaction and satisfactorniess are quite statistically independent and are measuring different aspects of the same instructional environment.

Objective 3: To determine the amount of variance accounted for by satisfaction and satisfactoriness.

It was believed that if the construct of educational adjustment is viable, then the instruments of satisfaction and satisfactoriness should be reliable

and valid. One way to assess the validity of the instruments is to ask the question "did it measure what it was suppose to measure". The way this was answered was to run a series of sequential, reduced regression equations separately for the two (2) external criterion of student satisfaction and then student satisfactoriness on its' associated four (4) external criterion measures.

The basic hypothesis is that is the scales of the satisfaction and satisfactoriness instrument account for the greatest amount of variance in total and by the six program areas.

The two criteria were used to assess the amount of variance accounted for by the six scales of the student satisfaction instrument these were: (1) if a student pictured themselves employed, and (2) overall satisfaction with the program. A series of full and restricted regression analyses were computed to determine which sets of variables accounted for the greatest amount of variance for each of the two criteria and then for the two largest programs. The criterion of "being employed in the occupation" does not appear to be a very good criterion when aggregate data are used ($R^2 = .43$). The factors which appear to account for the greatest amount of variance are the demographic variables and the subscales of the satisfaction instrument. When the scales of the instrument are removed from the equation, the R^2 value drops from a high of .92 and .90 for each of the criterion or the two programs to a low of .70 and .64 respectively indicating a loss of 22 and 26 units of variance respectively. This indicates scale scores account for the greatest amount of variance in the regression equation with demographic variables accounting for the next largest amount. Aptitude scores accounted for very little variance.

A similar analyses was run for each of the four criteria of satisfactoriness. When the 7 scale scores of the satisfactoriness instrument are dropped from the regression equation, there is a substantial drop in the R^2 values in total and for each of the four criteria separately and for each of the two programs. Values drop from a high of $R^2 = .99$ to a low of $R^2 = .17$ and .21 for some of the program criteria. Also, by dropping information about aptitude variables and demographic variables there seemed to be little reduction of amount of variance accounted for.

The regression analyses of both student satisfaction and satisfactoriness indicate that of all the variables in the regression equation, the scales of the two instruments consistently account for the greatest amount of variance

regardless of the criterion variable used. This would tend to indicate that these scales are very powerful indicators of student satisfaction and performance.

Objective 4: Relationship of student satisfaction and satisfactoriness as an indication of Educational Adjustment.

In order to address this objective, two different approaches were used. Ratings were classified as being high or low on the measures of satisfaction and satisfactoriness respectively. The data were then recorded in a series of contigency tables. In addition, the researcher interviewed each teacher and selected students in each of the six program areas to further verify the results in the contingency tables. This procedure further varified the data in the contengency tables. In almost all instances, the data shown in the contingency tables appear to be an accurate reflection of the students' performance in and satisfaction within each of the six vocational programs. Figure 5 shows the contingency tables for each of the six programs.

Program 2 (Automotive) produced very positive results of Educational Adjustment. That is, both students and teachers rated high in satisfaction and satisfactoriness respectively. Seventeen students rated high on satisfaction and teachers rated most students high on satisfactoriness. On the other hand, and conversely, program 5 (Gunsmithing) most students (9) were low in satisfaction and corresponding were judged low (19) in terms of the teachers' performance ratings (satisfactoriness) of students. It seems obvious that there is mutual and negative dissatisfaction on the part of students and teachers in this program. Unless something is changed in the instructional environment, it is likely that attrition will be high in this program. The remaining programs have relatively small numbers of students, thus there appears to be no pronounced pattern or trends in the data.

Summary

The purpose of this study was to begin to validate a construct referred to as Educational Adjustment in an attempt to develop a model, procedures and instruments that would help reduce student attrition for vocational programs.

The model of Educational Adjustment is derived from the concept of work adjustment which suggests that there needs to be a state of mutual

correpondence between the abilities of an individual and the ability requirements of the job and correspondence between the needs of the individual and the need reinforcers of the job.

In an educational setting, ability requirements are assessed by teacher ratings of student performance (satisfactoriness) and need reinforcers are assessed by the extent to which the student is satisfied with the instructional environment (satisfaction).

In order to test this model, it was necessary to develop and administer to teachers and students, instruments that to measure student performance and student satisfaction, respectively. These two instruments were shown to produce reliable data for each of six different vocational program both in terms of internal consistency and stability. Also the concepts of satisfaction and satisfactoriness were shown to be statistically independent but measuring different aspects within the same educational environment.

The importance of the scales of the satisfaction and satisfactoriness instruments was demonstrated by the fact that the scales of each of the two instruments consistently accounted for the greatest amount of variance in explaining differences in levels of performance and satisfaction in the program.

It was also true that by combining student ratings of satisfaction and teacher ratings of student performance as measured by the two instruments respectively, it was possible to identify and qualitatively validate positive and negative trends in educational adjustment for at least two of the six different vocational programs in the study.

Conclusions

The results of this research effort seem to validate the assumption that the eight (8) instructional variables listed by Smith (note 2) are, in fact, more educationally relevant than typical student data such as gender, race, economic status, and support services previously receive. Also, this preliminary research effort has indicated that special needs concerns should not be limited only to obviously handicapped, disadvantaged, and limited English proficient populations, but should incompass all students who are experiencing difficulty achieving their vocational educational goals. Education Adjustment measures seem to address a broad issue which may

eventually enable educators to quickly and effectively identify many types of students who have a high probability of failure unless their "satisfaction" and/or "satisfactoriness" levels are increased. It would, thus, seem appropriate to begin to focus on student "retention" efforts, not on dropout identification activities.

Limitations/Recommendations

This study was severly limited by the location and selection of programs, teachers and students as well as by the relatively small number of students in each of the six programs.

While the results of this original study produced what seem to be very promising findings, it is suggested that the study and instruments be used in other geographic locations where larger numbers of students are available for each program and involve a larger proprotion of female and minority student populations.

While this study was conducted with civilian vocational subjects, it is believed that these procedures and instruments may have potential for use in military technical training programs as well.

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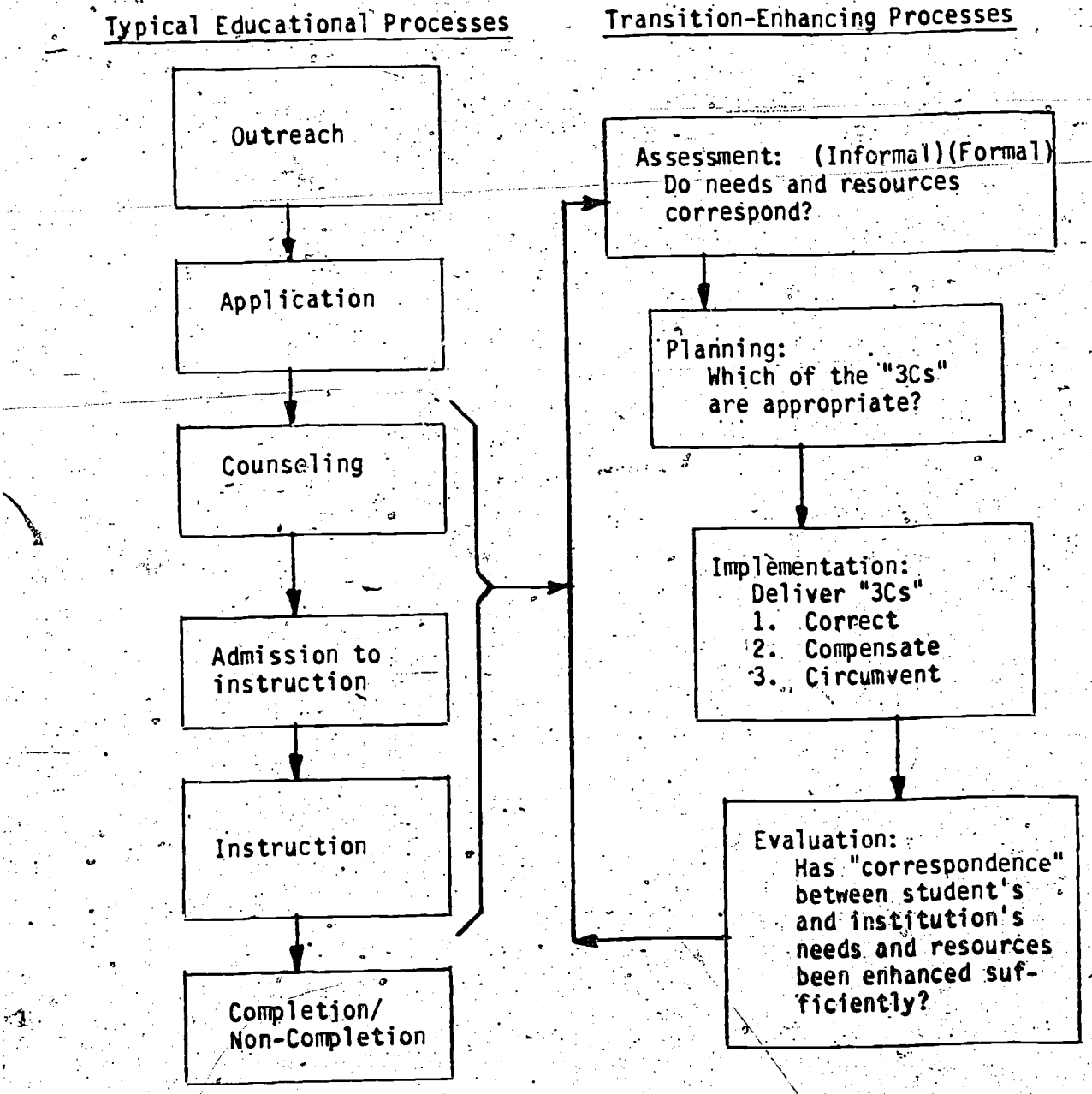

Figure 2. Relationships between major components in the educational process and transition-enhancing processes.

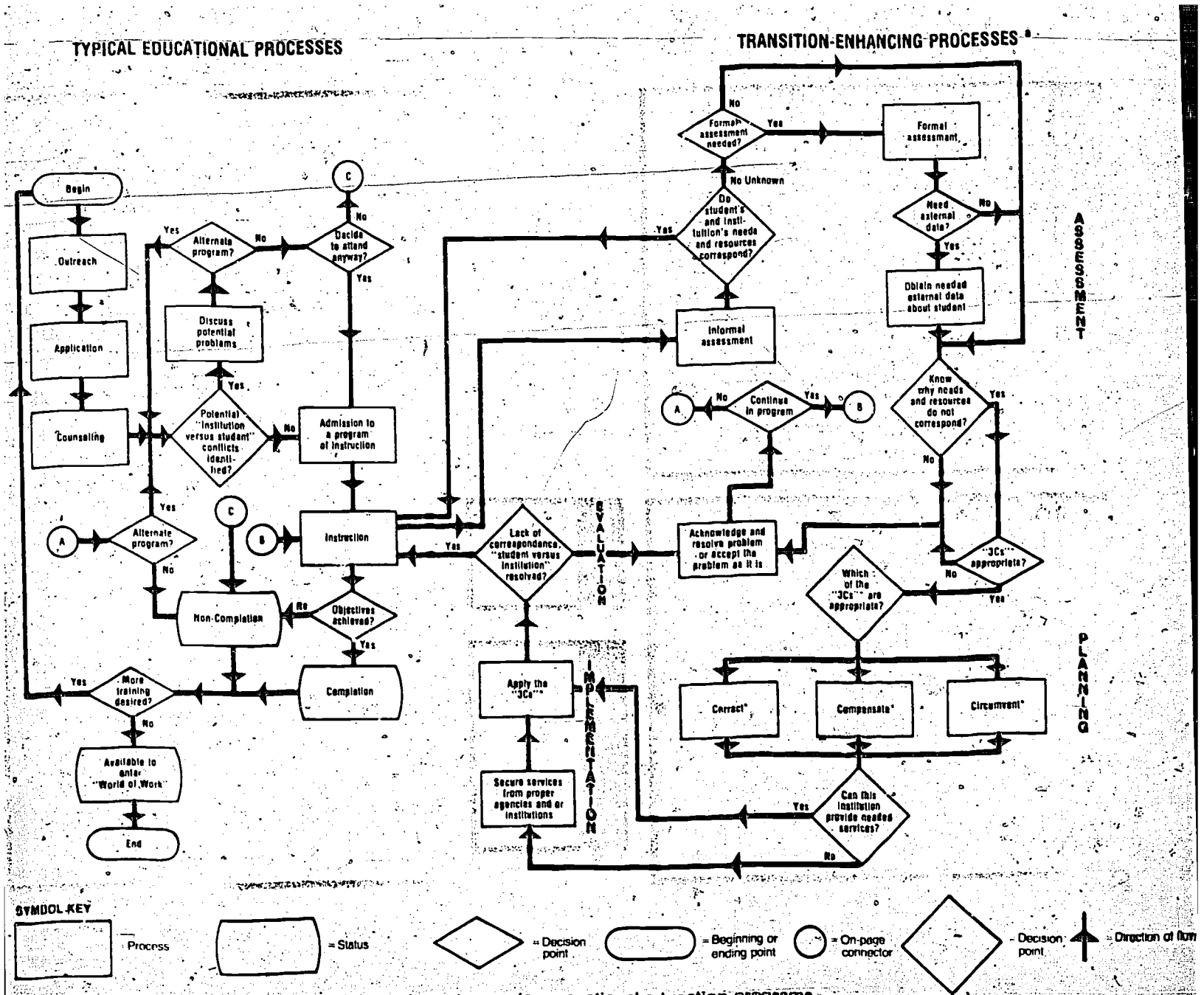

Figure 3. A model of transition into and through postsecondary vocational education programs

*Students with "special needs" are defined by this model as those persons who have needs and resources (abilities) which do not correspond adequately with the educational institution's needs (requirements) and resources (the educational environment). As this failure to correspond becomes more severe, the students' "satisfaction" with their educational experience will decrease and the student's "satisfactoriness," from the institution's perspective, will become unacceptable. Thus, it becomes likely that the student will drop out of school, transfer to another program, or be terminated.

MODIFYING VARIABL

BACKGROUND CHARAC

(CONSIDERED TO IN
SATISFACTION)

GENDER

Table 2
Student Characteristics by Program

Variable o categories	Accounting N=22	Auto N=28	Ag. Const. N=6	Fabrics N=7	Gun-smithing N=28	Welding N=5	Total N=96
Sex							
• Males	7	28	5	0	28	5	73
• Females	15	0	1	7	0	0	23
Marital Status							
• Single	14	21	6	4	20	3	68
• Married	4	3	0	3	8	2	20
• Other	4	4	0	0	0	0	8
Financial Aid Received**							
• Not Listed	7	13	0	4	4	0	27
• Job	2	7	2	0	0	0	11
• Social Service Agency	4	2	0	0	1	0	7
• Military	1	1	0	0	7	2	11
• Home/Work Study	0	2	1	1	5	1	10
• None	0	1	2	1	10	2	16
• More than 2 Sources	8	3	1	1	1	0	14
Special Needs Category++							
• None	16	28	6	7	24	4	85
• Handicapped	0	0	0	0	2	0	2
• Disadvantaged Academic	0	0	0	0	0	0	0
• Disadvantaged Economics	6	0	0	0	0	1	7
• L.E.P.	0	0	0	0	0	0	0
Special Needs Checked++							
• None	19	27	3	5	23	5	83
• General Learning Problem	0	0	1	0	0	0	1
• Reading	0	0	0	0	1	0	1
• Math	0	1	0	1	0	0	2
• Health	0	0	0	0	1	0	1
• Drugs	0	0	2	0	0	0	2
• Transportation	1	0	0	0	0	0	1
• Hearing Problems	1	0	0	0	0	0	1
• Vision Problems	0	0	0	0	0	0	0

Table 2 (Continued)
Student Characteristics by Program

Variable o categories	Accounting N=22	Auto N=28	Ag. Const. N=6	Fabrics N=7	Gun-smithing N=28	Welding N=5	Total N=96
Special Needs Checked++ (cont'd.)							
• Physical Problems	0	0	0	0	0	0	0
• Interpersonal	0	0	0	0	0	0	0
• Financial Aid	1	0	0	1	2	0	4
• Learning Disability	0	0	0	0	0	0	0
Previous Vocational Training							
• Yes	6	8	3	1	6	0	24
• No	15	18	3	6	21	5	68
Highest Grade Completed++							
• 10	0	5	0	1	0	1	7
• 11	1	2	0	0	2	0	5
• 12	17	19	6	5	23	3	73
• 13	4	0	0	1	0	0	5
• 14	0	0	0	0	1	0	1
• 15	0	0	0	0	1	0	1
• 16	0	0	0	0	1	0	1
• 16 plus	0	0	0	0	0	0	0
Income (Family)							
• Less than 3,000	1	1	0	2	1	0	5
• 3,000 tp 5,000	0	2	0	0	1	0	9
• 5,000 to 8,000	4	3	0	1	5	1	14
• 8,000 to 12,000	1	6	1	0	1	0	9
• 12,000 to 15,000	1	5	0	0	3	1	10
• More than 15,000	4	3	5	0	8	0	26
• Not Specified	11	8	0	4	9	3	34
Mean Age	23.09	23.50	19.53	21.28	26.32	20.80	23.66
Mean Math Scores**	44.5	23.95	36.5	35.85	34.81	19.0	23.12
Mean Reading Score							
• Vocabulary	39.5	35.95	39.33	37.85	40.22	35.75	38.39
• Comprehension*	38.56	34.04	34.66	36.57	38.18	34.50	36.51

++ Not tested for significance
* $p < .05$
** $p < .01$

Table 3

Reliability Analysis of Satisfaction Questionnaire
Analysis of Subscales by Aggregate and Program Data

Sample Groups	Size N	Internal Consistency Cronbach's Alpha Time 1	Time 2	Stability Pearson Product-Moment Time 1 with 2
Total	96	.47	.40	.72
Program 1	22	.53	.37	.65
Program 2	28	.53	.51	.87
Program 3	6	.68	.67	.91
Program 4	7	.40	.64	.83
Program 5	28	.40	.36	.51
Program 6	5	.74	.84	.22

Reliability Analysis of Subscales
Using Aggregate Data; N=96

Scale	# of Items	Internal Consistency Time 1	Time 2	Stability Time 1 with 2
Scale A	21	.95	.96	.77
Scale B	5	.83	.79	.37
Scale C	6	.83	.87	.43
Scale D	3	.92	.80	.61
Scale E	3	.59	.51	.52
Scale F	3	.66	.63	.35

Note: All values significant at $p<.05$.

Table 5

Analysis of Association
of the Two Instruments

Satisfaction and Satisfactoriness

(Aggregate Data)

Pearson Correlation of Total Scores

r= .114 , N= 96, Sig. Level = .25, (N.S.)

Canonical Correlation of Subscales

from both Questionnaires

Descriptor	Analysis Values
First Canonical Correlation	.59
Chi-Square	63.56
Degrees of Freedom	42
Number of Significant Roots at $p < .05$	1

Number of Subscales- Satisfaction = 6
Number of Subscales- Satisfactoriness = 7
Number of Subjects = 96

	High	Low	
High	N=11	N=1	12
Low	N=7	N=3	10
	18	4	

Program 1

	High	Low	
High	N=17	N=7	24
Low	N=2	N=2	4
	19	9	

Program 2

	High	Low	
High	N=3	N=1	4
Low	N=0	N=2	2
	3	3	

Program 3

	High	Low	
High	N=3	N=1	4
Low	N=3	N=0	3
	6	1	

Program 4

	High	Low	
High	N=2	N=9	11
Low	N=7	N=10	17
	9	19	

Program 5

	High	Low	
High	N=4	N=1	5
Low	N=0	N=0	0
	4	1	

Program 6

Figure 5

Contingency Tables of Individual Programs

Row = Satisfaction variable
Column = Satisfactoriness variable